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EXAMINER

YAO, SAM CHAUN CUA

ART UNIT

PAPER NUMBER

1733

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4

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/675,076

Applicant(s)

CRAINIC, SORIN

Examiner

Sam Chuan C. Yao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) 14-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-13, drawn to a method of preparing a composite non-woven fabric, classified in class 156, subclass 148.
 - II. Claims 14-27, drawn to a composite fabric, classified in class 442, subclass 383.
 - III. Claim 28, drawn to a method of making a high loft non-woven fabric, classified in class 28, subclass 104.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions (I & III) and II are related as process of making and product made.

The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process such as subjecting a first layer to a high pressure air entangling **or** to a needling process instead of a water-entangling process **or** using particulate binders instead of fiber binders.

Groups I and III are directed to distinct methods, where patentability in the independent claims of each group is based on divergent combination of method steps. For instance, claim 1 of group I requires "said second binder fibers having a desired melting temperature range substantially equal to said first binder fiber component

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melting temperature; ... second binder fiber component ... flowing into an interface region..."; but does not recite, for instance, "depositing a substantially dry air laid pulp layer ... simultaneously drying said hydroentangled web and bonding said unbonded composite ..." as required in claim 28 of group II; and vice versa. The differences between these groups are critical and significant to the extent that the inventions constitute prima facie patentably distinct combinations, absent evidence to the contrary. This can readily and clearly be demonstrated by a side-by-side comparison of the independent claims. Similarities of the independent claims are merely superficial, since certain significant limitations in one of the groups find no counterpart in the other group(s) and vice versa.

Presently, no claim is generic. **Rejoinder of these two groups of method will be considered, upon indication of allowable subject matter, depending on the basis thereof.**

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, and the search required for Group I is not required for Group III and vice versa, restriction for examination purposes as indicated is proper.

4. During a telephone conversation between Examiner Lynda Salvatore and Mr. Russel Pyle on 05-07-02 a provisional election was made without traverse to prosecute the invention of Group I and III, claims 1-13 and 28. In a subsequent telephone interview on 07-02-02, Examiner informed Mr. Pyle that an election between Group I and III is required. Mr. Pyle elected Group I (claims 1-13) without traverse. Affirmation

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of this election must be made by applicant in replying to this Office action. Claims 14-27 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-3, 9 and 11 are indefinite because the phrase "said first layer" does not have a proper antecedent basis. For the purpose of examining this phrase, it is assumed that, this phrase is referring to a hydroentangled web recited in process step "a" of claim 1. Moreover, the limitation "a high bulk, high loft fiber component" for a 2nd web layer is not understood, because dependent claim 10 requires this layer to be a "dry tissue", These two limitations would appear to contradict each other because the term "tissue" generally connotes a thin sheet, while claim 1 appear to require the web to be a high bulk, high loft layer. For the purpose of examining this limitation, in light of the specification on page 2 2nd to a last paragraph and page 5 1st full paragraph, it is assumed that, the second layer is required to be "a high bulk, high loft" fiber web. Since claim 10 is inconsistent with independent claim 1, no art rejection will be attempted for this claim. The lack of a prior art rejection on claim 10 should not be construed as meaning that

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the claims would be patentable if corrected to overcome the 35 USC 112 rejection set forth above. No prior art rejection has been made since it would be improper to rely on speculative assumptions as to the meaning of the claims in this application.

Claim 2 is indefinite because it is unclear whether the recited "hydroentangled staple fibers" is referring to the "hydroentangled substrate web" of claim 1. For the purpose of examining this claim, it is assumed that, claim 2 requires the hydroentangled substrate web of claim 1 comprises staple fibers.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-9 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Groeger et al (US 5,674,339) in view of (Knoke et al (US 5,552,206) or Roussin-Moynier (US 5,375,306)) and Cruise et al (US 5,874,159).

Groeger et al discloses a process of making a composite non-woven fabric, the process comprises:

a) depositing an 1st open non-woven web (24) including 1st binder fibers; b) depositing a 2nd open non-woven web (46) including 2nd binder fibers; and, c) thermally bonding these web layers together by melting both binder fibers without application of a pressure (i.e. no increase in density); wherein the 1st and 2nd

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binder fibers derived from an identical material (col. 7 lines 38-64; claims 1-2; figure 9). Although not explicitly disclosed, the thermally bonded webs of Groeger et al are implicitly understood to be subjected to a cool process (either by just exposing to it to ambient condition or force cooling) to harden the melted binder fibers. Moreover, as clearly illustrated in figures 3 and 9, at least the 2nd open non-woven web naturally has a "high bulk, high loft fiber component". It is further taken that, because of gravitation force, and because Groeger et al discloses forming a unitary structure upon bonding since fibers from each web layer extend into and intermingle with fibers in adjacent webs (col. 4 lines 26-41), the melted binders in the 2nd open non-woven web are intrinsically expected to at least flowed "into an interface region between" 1st and 2nd non-woven webs.

Groeger et al does not teach hydroentangling either one of the 1st and 2nd non-woven webs before they are thermally bonded together. However, it would have been obvious in the art to hydroentangle at least one of two open non-woven webs in making the composite fabric of Groeger et al before they are thermally bonded together because: a) Knoke et al, drawn to making a non-woven fabric, discloses hydroentangling a fiber web to obtain a "special softness" to the fabric and thermal bonding the fiber web to activate binder fibers so as to enhance "internal strength" of the fabric (col. 2 lines 47-50; claim 16) or Roussin-Moynier, drawn to forming a nonwoven fabric, discloses hydroentangling a fiber web and then thermally bonding the web by activating the binder fibers to form a fabric having an enhance tear resistance with textile appearance (col. 2 line 65 to col. 3

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line 10); and b) Cruise et al, drawn to forming a durable spunlaced composite fabric, discloses hydroentangling each of two fibrous webs and then thermally bonding webs together to form a fabric that has a feel and appearance of a conventional spunlaced fabric (i.e. softness, comfort, drapability, etc.) "but with significantly improved durability" (col. 1 lines 10-18; col. 2 lines 13-26; col. 6 lines 1-11).

With respect to claim 2, see column 5 lines 33-45.

With respect to claim 3, since Groeger et al is not restrictive to particular type of fibers in making a composite fabric, and also teaches using cellulose acetate (col. 5 lines 33-45); and since it is conventional in the art to interchangeably use a cellulose acetate with a regenerated cellulose such as a rayon in making a non-woven fabric, this claim would have been obvious in the art.

With respect to claims 4-7 and 12-13, since Groeger et al is also not restrictive as to the type of binder fibers and structural fibers to use in making a composite fabric (col. 5 lines 64); since the materials recited in these claims are conventional in the art of making a composite fabric; and since one in the art would have determined a suitable composition/weight basis for each fiber web layer in making the composite fabric of Groeger et al for the desired end-use of the fabric, these claims would have been obvious in the art.

9. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over references set forth in numbered paragraph 8 as applied to claim 1 above, and further in view of the Admitted Prior Art (APA).

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The APA discloses a process of making a non-woven composite fabric, the process comprises hydroentangling a first nonwoven web layer and then depositing a high loft non-woven web layer onto the first non-woven web layer using an air-laying process (specification; pages 1-2).

It would have been obvious in the art to incorporate the teachings of Groeger et al in making the nonwoven composite fabric of the APA by providing binder fibers into each of the webs because: a) the APA teaches the difficulty of attaching the prior art web layers together; and, b) Groeger et al providing binder fibers to each web layers and then thermally bonding the layers together to form a unitary structure which substantially precludes delamination between layers. It directly follows that, since the 2nd web layer is air-laid and not subjected to a hydroentangling process, the 2nd web layer is reasonably expected to be substantially dry. Moreover, it would have been obvious in the art, motivated by the desire to simplify and reduce energy cost, to simultaneously activate binder fibers and dry the hydroentangled web as such is a well known process in the art as exemplified in the teachings of Roussin-Moynier (col. 4 lines 61-68).

10. Claims 1-9 and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Admitted Prior Art (APA) in view of Groeger et al (US 5,674,339).

The discussion of the Groeger et al patent in the above numbered paragraph is incorporated herein in its entirety.

The APA discloses a process of making a non-woven composite fabric, the process comprises hydroentangling a first non-woven layer and then depositing a

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high loft non-woven layer onto the first non-woven layer by an air-laying process (specification; pages 1-2). The APA differs from claim 1 in that, the APA does not teach providing binder fibers to each non-woven layer and then thermally activating the binder fibers to bond and stabilize the layers together. However, it would have been obvious in the art to incorporate the teachings of Groeger et al in forming the non-woven composite fabric of the APA: a) the APA teaches the difficulty of attaching the prior art web layers together; and b) Groeger et al providing binder fibers to each web layers and then thermally bonding the layers together to form a unitary structure which substantially precludes delamination between layers. Although not presently recited, one in the art would have readily recognized and appreciated that, by providing binder fibers to each web layer as suggested by Groeger et al, one can also effectively immobilized superabsorbent particles in the web layers. As using the identical binder fibers for each non-woven layer, such would have been obvious in the art as such is taught by Groeger et al. As for the limitation of the binder fibers melting and flowing into an interface region between the layers such would naturally flow from the modified process of the APA for reasons set forth in numbered paragraph 8. As for cooling the layers and no increase in density, it is inferred that, after a step of thermally activating binder fibers without pressure as suggested by Groeger et al, the web layers are understood to be intrinsically cooled to harden the melted fibers in the web layers.

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With respect to claims 2-9 and 12-13, these claims would have been obvious in the art, for essentially identical line of reasoning as set forth in numbered paragraph 8 above.

Allowable Subject Matter

11. Claim 11 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

12. The following is an examiner's statement of reasons for allowance:

None of the art taken teaches providing an additional hydroentangled fiber web containing binder fibers to the composite fabric of claim 1.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Neveu et al (US 5,253,397) is cited as a reference of interest showing a process where a "foil of cellulose wadding" layer is deposited onto a hydroentangled web layer, and the two layers are thermally bonded together, wherein at least one of the layers contains binder fibers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Chuan C. Yao whose telephone number is (703)

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308-4788. The examiner can normally be reached on Monday-Friday with second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael W Ball can be reached on (703) 308-2058. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7115 for regular communications and (703) 305-7718 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.



Sam Chuan C. Yao
Primary Examiner
Art Unit 1733

scy
July 8, 2002